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tains (type), and 918½ from Spanish Basin, 1896; Frank Tweedy, no. 340, Park county, 1887.

Nevada: S. Watson, no. 667, 1868.

SENECIO CROCATUS.

S. aureus var. *croceus* Gray, Proc. Acad. Phila. 1863: 68. 1863.

Not *S. croceus* DC.

This is well distinct from both the preceding and from *S. aureus*, differing in its smaller oval or obovate, coarsely and bluntly dentate, somewhat fleshy basal leaves. It represents *S. obovatus* of the East. It was collected in Montana by Mr. Flodman in the Little Belt Mountains, near the pass, no. 911.

CREPIS RUNCINATA ALPICOLA.

Stem scapose, about 1 dm. high, generally only 1-flowered; leaves entire, or with a few small teeth, and with very short petioles.

In habit it is very unlike the typical *C. runcinata*, but I have been unable to find any essential characters in the heads, involucre, pappus or achenes, by which to separate it as a species. The short 1-flowered stem, smaller and more entire leaves may be due to the high altitude, 7000 feet, at which it grew.

Type: Flodman, no 931, August 24, 1896, from Yogo Baldy, Little Belt Mountains.

Antennaria dioica and its North American Allies.

By P. A. RYDBERG.

In 1892 when I began to determine my Black Hills collection, I felt that there must be something wrong in the genus *Antennaria*, especially in the group of which *A. dioica* is the representative species. My studies then, my field work in 1895 and 1896, and Mr. Flodman's collection have made it possible I think to remove at least a part of the difficulty. What have been named in our herbaria *A. dioica* and *A. alpina* constitute not less than six distinct species. I suspected that *A. plantaginifolia* contains more than one species, but have not been able to satisfactorily solve the problem. This seems to have been done by Prof. E. L. Greene in a recent

number of "Pittonia"; I shall, however, add a description of the prairie plant of Nebraska, Kansas and Dakota, referred to in Prof. Greene's paper. As far as I know the species at present, I shall arrange them as follows:

Heads sessile at the ends of short leafy branches resembling the stolons.

A. rosulata.

Heads in cymose or subcapitate clusters, or solitary on evident erect stems.

Basal leaves and those of the stolons narrowly oblanceolate; bracts generally rose-color.

A. parvifolia.

Basal leaves and those of the stolons spatulate or obovate.

Basal leaves .5-4 cm. long and less than 1.5 cm. wide, one-ribbed or indistinctly three-ribbed.

Heads 5-7 mm. high.

Plants less than 1.5 dm. high; heads in subcapitate clusters.

Bracts of the pistillate plant dark greenish brown, acute or acuminate.

A. alpina.

Bracts of the pistillate plant umber, obtuse.

A. umbrinella.

Plants generally over 2 dm. high; heads in an open cyme.

Basal leaves $\frac{1}{2}$ -1 cm. long; stem leaves linear.

A. microphylla.

Basal leaves 2-3 cm. long; stem leaves spatulate, broadly oblong and ovate-lanceolate.

A. pedicellata.

Heads about 1 cm. high.

Basal leaves broadly spatulate, with a distinct petiole, generally tomentose on both sides; bracts of pistillate plant obtuse, or the innermost seldom acute.

A. dioica.

Basal leaves more glabrate above, without distinct petiole; bracts of pistillate plant acute or acuminate, or the outermost obtuse.

Stem slender, 2-3 dm. high; stolons very long; basal leaves narrowly cuneate.

A. neglecta.

Stem stout, short, about 1 dm. high; stolons short; basal leaves obovate.

A. campestris.

Basal leaves over 4 cm. long and 1.5 cm. wide, prominently 3 ribbed.

Heads cymose; bracts of pistillate plant lanceolate.

Basal leaves broadly cuneate without distinct petiole.

A. Howellii.

Basal leaves oval with a distinct petiole.

A. plantaginifolia.

Head solitary; bracts of pistillate plant almost linear.

A. solitaria.

Heads racemose or paniculate.

A. racemosa.

ANTENNARIA ROSULATA.

Antennaria dioica var. *congesta* Gray, Syn. Fl. 1: pt. 2, 233.

At least in part. 1884. Not DC.

The two sheets of the American plant found in the Columbia University herbarium differ considerably from European specimens in the same herbarium. The European is evidently a depauperate form of *A. dioica* or at least nearly related to it. The American plant, besides having a more trailing habit, possesses an almost turbinate involucre, of which only the innermost row of bracts have a broadly oblong obtuse papery appendage; the outer ones are even destitute of scarious margins. The whole involucre is densely white tomentose. Specimens seen: E. A. Mearns, no. 40, 1887, from the Mogollon Mountains, Arizona; E. Palmer, no. 109, 1869.

ANTENNARIA PARVIFOLIA Nutt. Trans. Am. Phil. Soc. 7: 406.

A. dioica var. *rosea* D. C. Eaton, Bot. King's Exped. 186. Name only. 1871.

Stems very slender, $1\frac{1}{2}$ –3 dm. high; pubescence of the whole plant fine, silky and somewhat yellowish; leaves of the stolons narrowly oblanceolate, 2–3 cm. long; stem leaves linear; heads small, 5–7 mm. high, in a contracted almost capitate cyme; bracts of both staminate and pistillate heads in several rows, yellowish, the scarious portion oblong, obtuse, nearly always tinged with rose or pink.

It is nearest related to *A. dioica*, differing in the slender habit, small heads, narrow leaves and the color of the plant and bracts; the staminate plant is very rare. The following specimens are in the Columbia herbarium:

California: Mrs. R. M. Austin, 1894; J. Torrey, no. 256, 1865.

Oregon: Wilkes expedition.

Washington: W. N. Suksdorf, no. 2190, 1892.

Idaho: A. A. & Gertrude Heller, no. 3441, 1896.

Nevada: S. Watson, no. 652, 1868.

Utah: M. E. Jones, no. 1390, 1879.

Colorado: Parry; F. N. Pease; Dr. E. Penard, nos. 282 and 284, 1891.

South Dakota (Black Hills): P. A. Rydberg, no. 79, 1892.

Montana: J. H. Flodman, no. 863, 1896.

Vancouver Island: John Macoun, 1887.

Subarctic America: R. Kennicott, 1861–62.

ANTENNARIA ALPINA (L.) Gaertn. Fr. & Sem. 2: 410. 1791.

Gnaphalium alpinum L. Sp. Pl. 856. 1753.

A. alpina is characterized by the bracts of the pistillate head, which are dark greenish brown, lanceolate and acute. The staminate plant is exceedingly rare; in the Columbia herbarium there are only three small plants, two, both monocephalous, collected by M. W. Harrington in Alaska, and the third received from Dr. Hooker, without any reference to locality or collector.

A. alpina has been collected in Montana by J. H. Flodman on Yogo Baldy, August 24, 1896, no. 861; Long Baldy, August 19, no. 862, and by Frank Tweedy in the Bozeman Pass, 1883.

ANTENNARIA UMBRINELLA n. sp.

Stem generally about 1 dm. high; leaves of the stolons spatulate, 1-1.5 cm. long, those of the stem linear-oblong; heads small, about .5 cm. high, conglomerated in small subcapitate clusters; scarious portion of the bracts in the pistillate head oblong, obtuse, in the outer varying from umber to isabel-colored, in the inner lighter colored and sometimes almost white; in the staminate heads all elliptic, obtuse and isabel-colored or yellowish white.

In habit it much resembles *A. alpina*, from which it differs by the oblong obtuse bracts of the pistillate plants and somewhat smaller heads. The staminate plants of the two species are almost identical in every respect except that the bracts are of slightly lighter color in *A. umbrinella*. I describe this species as new, with some hesitation, not that I have any doubt concerning its distinctness from *A. alpina* and our North American species, but it is so closely similar to *A. Magellanica* Sch. Bip.* that if it were not for the great distance between their ranges and for the slightly longer leaves and more slender caudex of the latter, I would regard the two as one species. The staminate plants are nearly as common as the pistillate ones. The following specimens are in the Columbia herbarium:

Montana: J. H. Flodman, no. 859, August 19, 1896, from Long Baldy in the Little Belt Mountains (type) and no. 860, July 18, from Spanish Basin.

Wyoming: Aven Nelson, no. 885, 1894 (labelled *A. dioica*).

Nevada: S. Watson, no. 650 (*A. alpina*) and 651, 1868.

* Flora 38: 117. 1855.

Idaho: I. Mulford, 1892 (*A. dioica*).

Oregon: Wilkes Expedition (*A. dioica*).

Arctic America: Dr. Richardson, 301 (*Gnaphalium dioicum*).

ANTENNARIA MICROPHYLLA.

Stem slender, strict, 2–3 dm. high; pubescence very fine; leaves of the stolons small, .5–1 cm. long, spatulate; stem-leaves linear-oblong; heads small, 5–7 mm. high, in a rather open corymb; bracts of the pistillate heads tinged with greenish yellow, linear-oblong or lanceolate, mostly acute, those of the staminate head with oval-oblong white scarious margins.

In the characters of the head and bracts, it is intermediate between *A. alpina* and *A. plantaginifolia*. The head is scarcely as large as that of the former, the stem is much more slender than in either and the leaves smaller than in any of the group. It has been variously labelled in collections as *A. dioica*, *A. luzuloides*, *A. Carpatica*, etc. The following specimens are in the Columbia herbarium:

Montana: P. A. Rydberg, no. 2831, 1895, from Manhattan (type); J. H. Flodman, no. 864, 1896, from Bozeman.

Yellowstone National Park: Frank Tweedy, no. 203, 1884; A. Brown, 1893.

Wyoming: Fremont; A. Nelson, no. 762.

Colorado: C. C. Parry, 1872; Letterman, no. 200, 1884.

Utah: S. Watson, no. 651, 1869.

Saskatchewan: E. Bourgeau, 1858.

ANTENNARIA PEDICELLATA Greene, Pittonia, 3: 175. 1897.

Specimens of what I take to be this species were collected by Mr. Flodman in the Little Belt Mountains, Mont., in 1896, no. 867. These have large stem leaves about 3 cm. long and 1 cm. wide; the lower ones are cuneate, obtuse, the middle ones broadly oblong and the upper ones ovate-lanceolate and acute.

ANTENNARIA DIOICA (L.) Gaertn., Fruct. & Sem. 2: 410. 1791.

Gnaphalium dioicum L. Sp. Pl. 856. 1753.

In the American specimens seen the stem is seldom 1.5 dm. high, rather stout, with larger heads often over 1 dm. high, the scarious portion in the staminate heads elliptic, in the pistillate oblong and obtuse, or the innermost rarely acutish, and the leaves of

the stolons broadly spatulate, or obovate, about 2 cm. long. In America it ranges from the Arctic regions to New Mexico and Arizona, and is the most common species in Montana.

For *ANTENNARIA NEGLECTA* Greene, *A. PLANTAGINIFOLIA* (L.) Hook. and *A. HOWELLII* Greene, see Prof. E. L. Greene's descriptions in *Pittonia*, 3: 173-4.

ANTENNARIA CAMPESTRIS n. sp.

Stem low, about 1 dm. high; basal leaves obovate-cuneate, 2-3 cm. long and about 1 cm. wide, without a distinct petiole, 1-ribbed or indistinctly 3-ribbed, the upper surface glabrate in age; stolons very short; pistillate heads about 1 cm. high, bracts lanceolate. the lower portion greenish, the upper brownish and ending in a scarious white acute or acuminate tip; staminate heads somewhat smaller; the white scarious tips of the bracts elliptical and obtuse.

It is nearest related to *A. neglecta* Greene, from which it differs mainly in the low habit, broader basal leaves, and short stolons. It is confined to the prairies and plains west of the Mississippi.

Nebraska: H. J. Webber, 1887; G. D. Swezey; J. M. Bates, 1891; P. A. Rydberg.

South Dakota: P. A. Rydberg, no. 794, 1892 (Black Hills).

Saskatchewan: Dr. Richardson.

ANTENNARIA SOLITARIA n. n.

Gnaphalium monocephalum Carpenter, in Torr. & Gray, Fl. N. Am. 2: 431. 1843.

Antennaria plantaginifolia monocephala Torr. & Gray, l. c.

Antennaria monocephala Greene, *Pittonia*, 3: 176, 1896. Not DC. Prod. 6: 269. 1837.

To the characters given by Prof. Greene, may be added the exceedingly narrow bracts of the pistillate head.